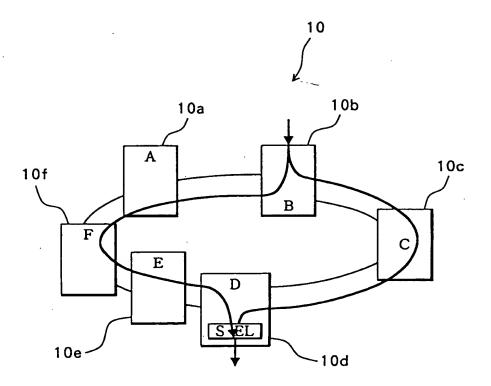
FIG. 1



#### F16.2

•		TRANSMIT			RECEIVE		
	SIDE	DESTINATION	SOURCE	SIDE	DESTINATION	SOURCE	
	WEST SIDE	SOURCE	DESTINATION	WEST SIDE	SOURCE	DESTINATION	
	SIDE	DESTINATION	SOURCE	EAST SIDE	DESTINATION	SOURCE	
1	EAST SIDE	SOURCE	DESTINATION	EAST	SOURCE	DESTINATION	
		E → W DIRECTION	W→E DIRECTION		E→W DIRECTION	W→E DIRECTION	

SOURCE : 4BITS DESTINATION : 4BITS

F16.3

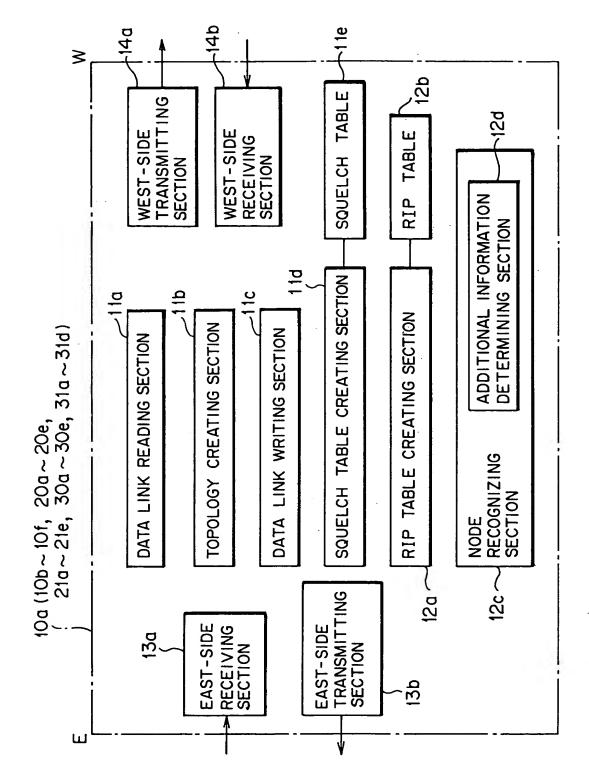


FIG. 4(a)

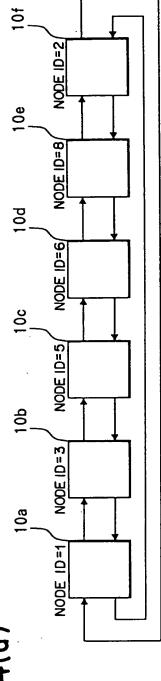


FIG. 4(b)

		,	2	5	4
TOPOLOGY TABLE   1,3.5.6.8.2	. 5. 6. 8. 2 3. 5. 6. 8. 2. 1	. 1 5. 6. 8. 2. 1. 3	1.3 6.8.2.1.3.5.	5. 8.2.1.3.5.6	2. 1. 3. 5. 6. 8

F1G. 4(c)

	_					_	
NODE 2	ED INDICATED NODE	2	1	3	5	9	8
NODE 8	INDICATED NODE	8	7	ļ	ю	5	9
NODE 6	INDICATED NODE	. 9	8	2	1	3	5
NODE 5	ED INDICATED INC	5	9	8	2	1	3
NODE 3	INDICATED NODE	£	9	9	8	2	1
NODE 1	INDICATED NODE		٤	2	9	8	2
	RELATIVE ID	0	1	2	3	4	5

FIG. 5(c) FIG. 5(d) F1G. 5(b) F16.5(a)

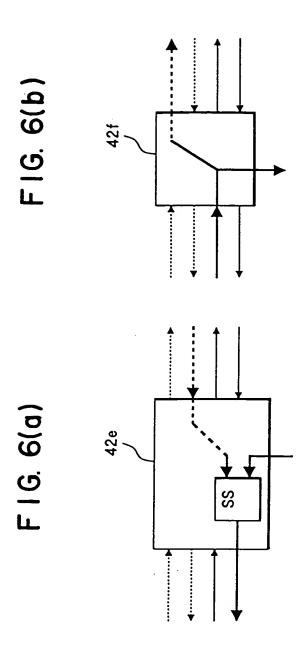
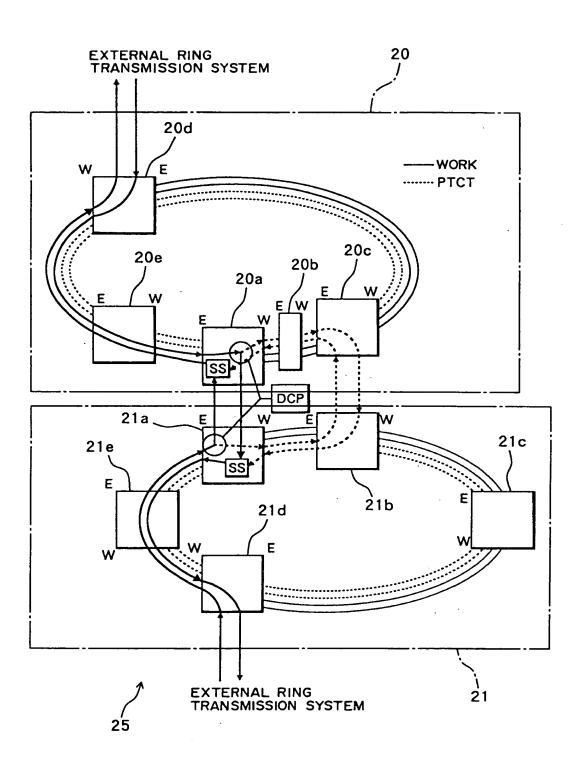


FIG. 7(b) 42h PSW F16. 7(a) 42g •

F1G. 8



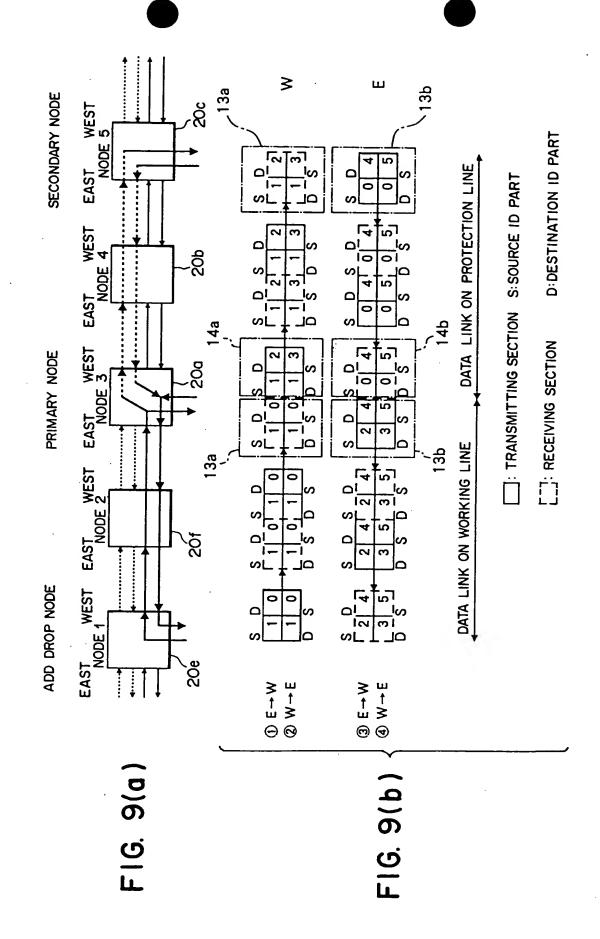
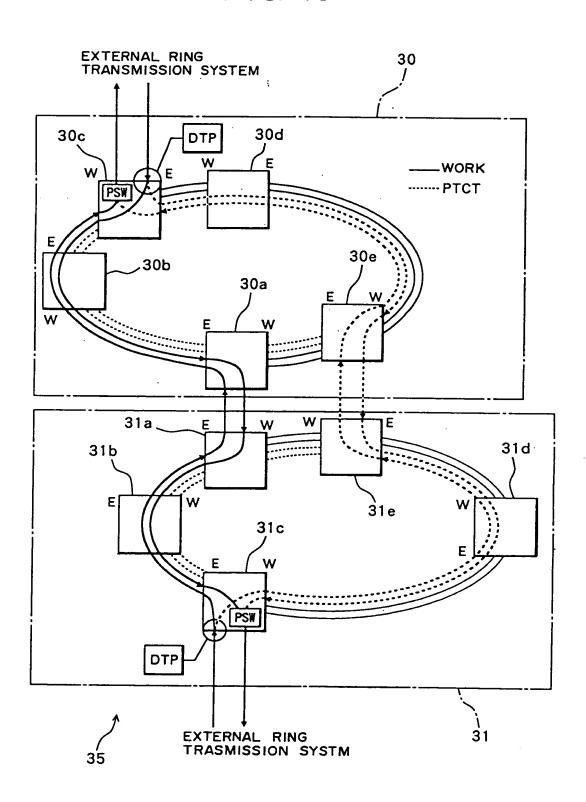
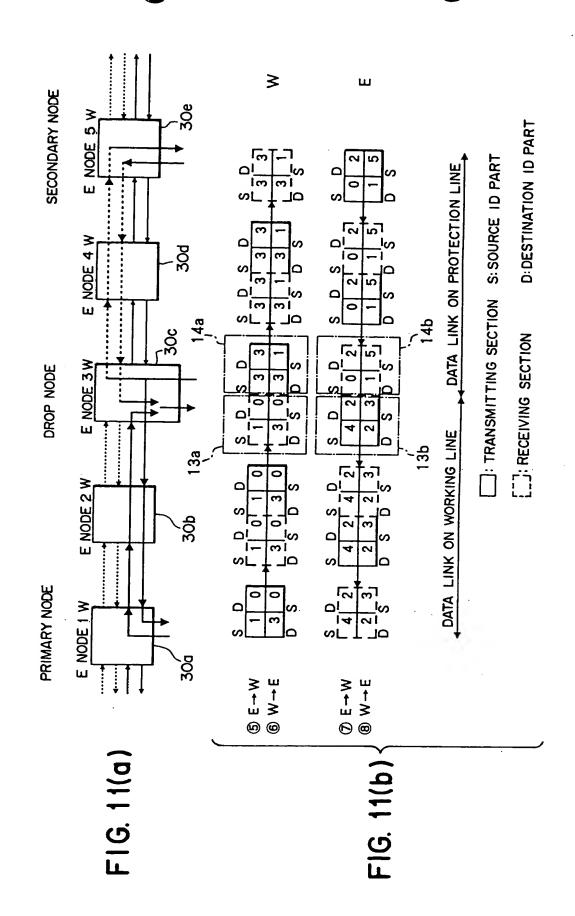
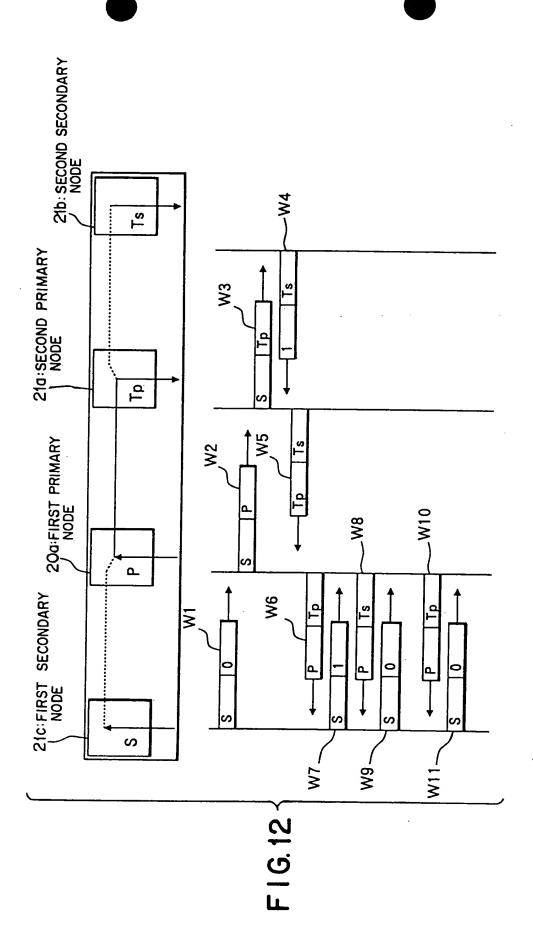


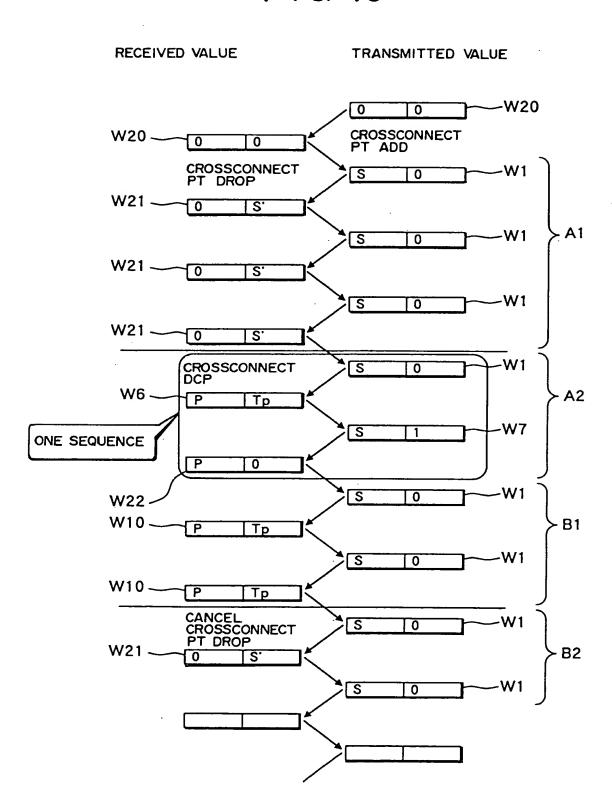
FIG. 10







F I G. 13



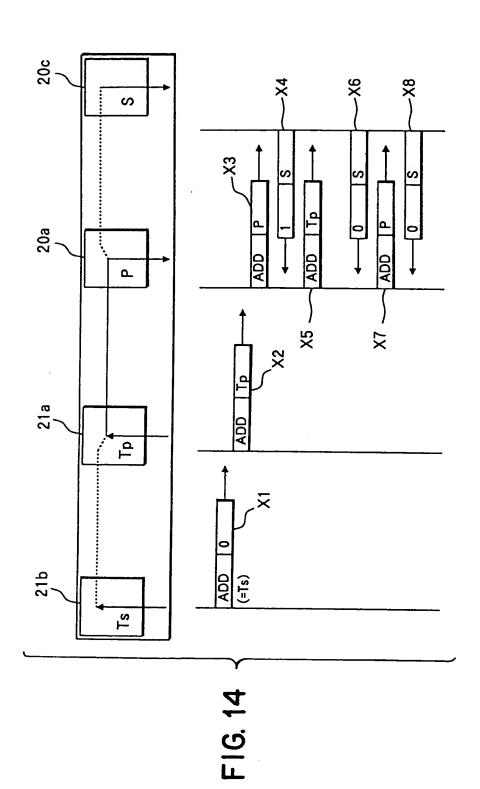


FIG. 15

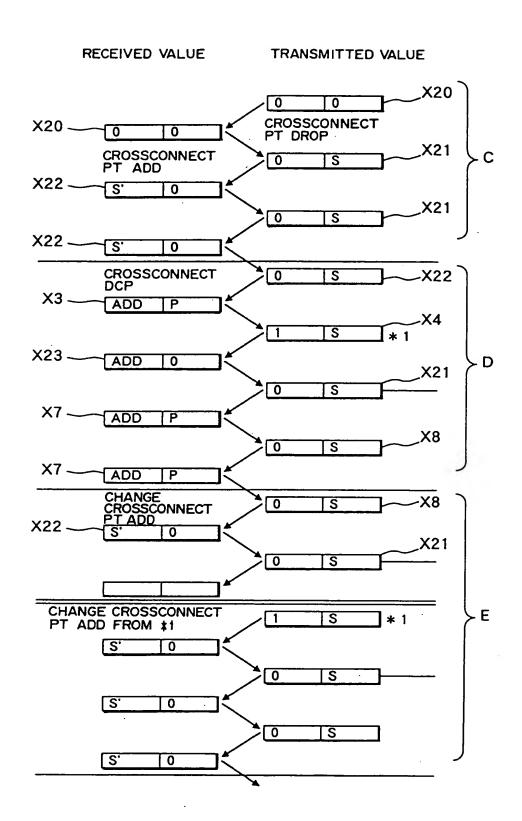


FIG. 16

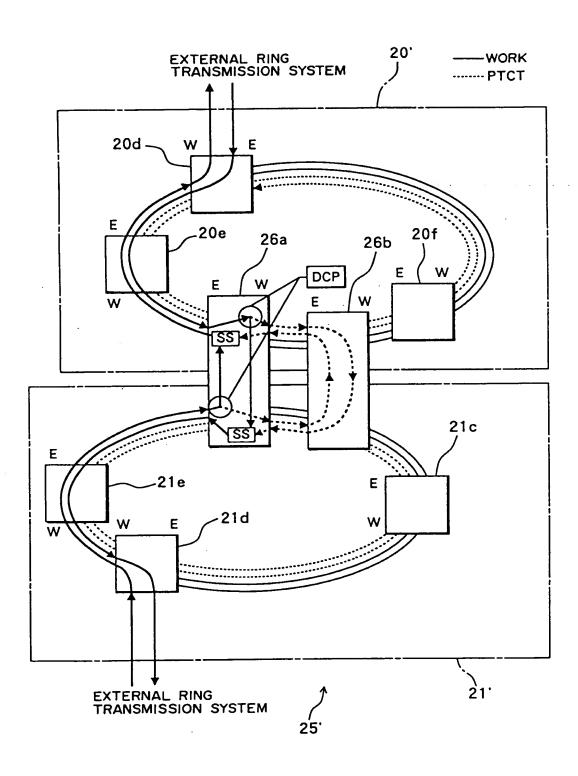
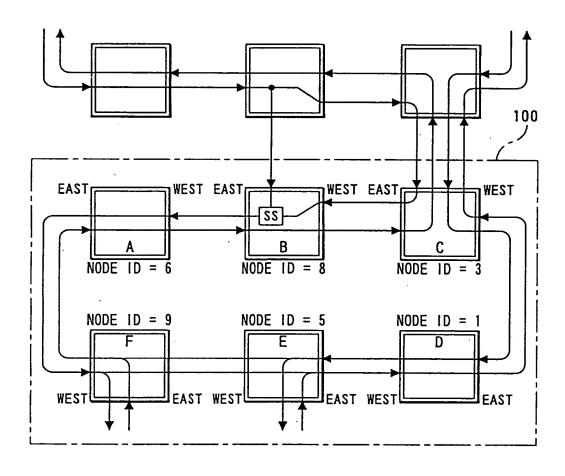
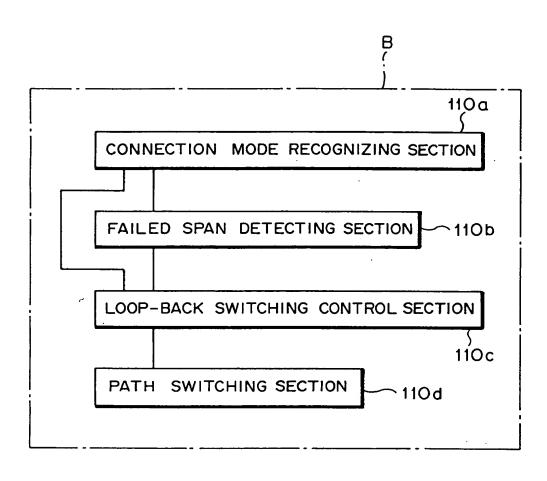


FIG. 17



**FIG.18** 



#### FIG.19(a)

· RING MAP OF B NODE ( NODE ID = 8 )

NODE NAME NODE ID

В	U	۵	Ш	F	Α
8	3	1	5	9	6

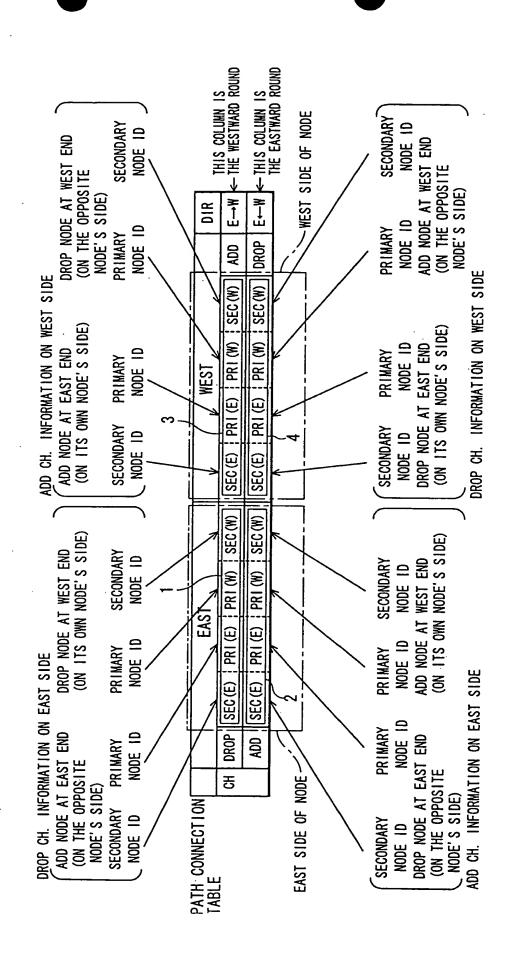
#### FIG.19(b)

• RING MAP OF C NODE ( NODE ID = 3 )

NODE NAME NODE ID

С	D	E	F	Α	В
3	1	5	9	6	8

F16. 20



F16. 21

NETWORK STRUCTURE INFORMATION TABLE (DCP/DTP/DCW/DTW STRUCTURE)

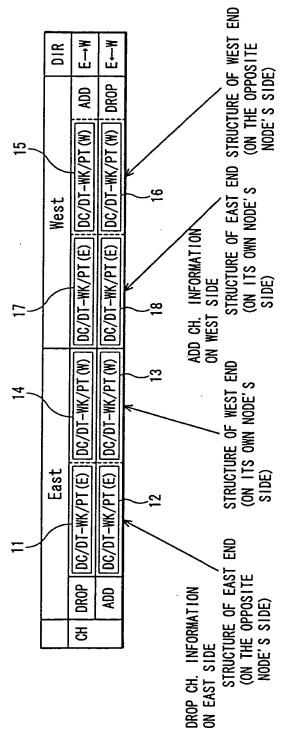


FIG. 22

FAILURE DETECTION PATTERNS AND OPERATIONS OF NODES (IN THE CASE OF DCP)

	Failure	Operation of	Operation of	Corresponding
	detection	primary node	secondary	basic
	pattern		node	operation
a	Failure in	Only DROP,	Access to	(2-α)
	working line	stop service	PTCT line in	
	involving	selector	the opposite	
	primary node		direction	
b	Failure in	Same the	Access to	(2-γ)
	working line	above	PTCT line in	(- , ,
	not		the opposite	
	involving		direction,	
	primary node		set drop &	
			continue *1),	
			set service	
			selector1)	
С	Failure in	Same the	Stop access	(1)
	protection	above	to PCA	
	line in the	•		
	single-			
	sided			
đ	Failure in a	Same the	Same the	(1)
-	(another)	above	above	
	span through			
1	which no			
	signal			
	passes			
е	Failure in	Same the	Access to	Exception
	protection	above	PTCT line in	
	line in the		the opposite	
	double-		direction	
	sided			

Comment 1) Operating "drop & continue" and "service selector" at secondary node is Optional Enhanced Operation (GR-1230, Issue 3, Fig. 3-43).

Comment 2) Pattern only in double-sided DCP.

Note) Contents of c and d are equivalent.

OF DTP)

FAILURE DETECTION PATTERNS AND OPERATIONS OF NODES (IN THE CASE

FIG. 23

		<del></del>		
1 1	Failure	Operation of	Operation of	Corresponding
	detection	terminal node	secondary	basic
	pattern		node .	operation
a	Failure in	Stop bridging	Access to	(2-α)
	working line	to PTCT, stop	PTCT line in	•
	involving	path-	the forward	
	primary node	switching	direction	
Ъ	Failure in	Same the	Access to	(2-7)
	working line	above	PTCT line in	
	not		the forward	
<b> </b> .	involving		direction,	
	primary node		set drop &	
]			continue"1),	
]			set service	
			selector1)	
С	Failure in	Same the	Stop access	(1)
1 1	protection	above	to PCA	
	line			
			• .	
d.	Failure in a	Same the	Same the	(1)
	(another)	above	above	
	span through			
	which no			
	signal			
1 1	passes		l	

Comment 1) Operating "drop & continue" and "service selector" at secondary node is Optional Enhanced Operation (GR-1230, Issue 3, Fig. 3-43).

Note) Contents of c and d are equivalent.

Note) Operation of secondary node is to access to PTCT line in the opposite direction in DCP, but to access in the forward direction (direction in which the secondary node originally accesses) in DTP.

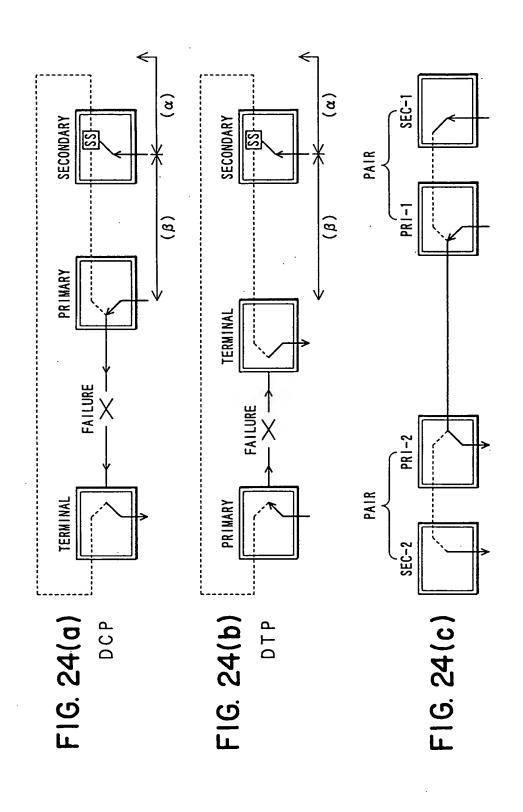
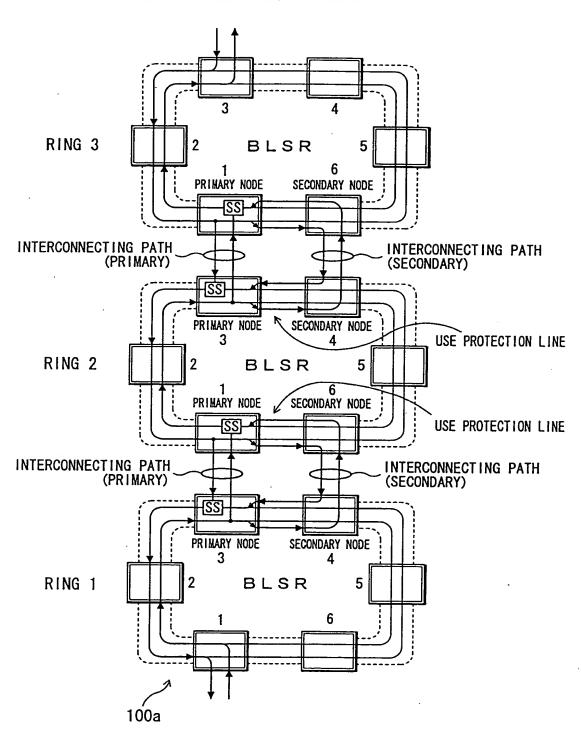


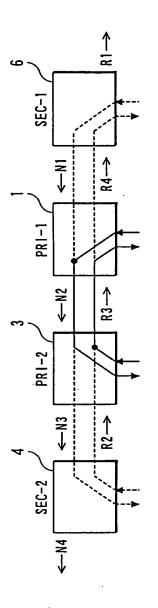
FIG. 25

DCP-DCP (DOUBLE-SIDED DCP) STRUCTURE



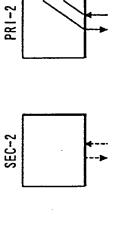


NORMAL OPERATION



### FIG. 26(b)

FAILURE POSITION LOOKED FROM SEC-1 N4-R1 FAILURE POSITION LOOKED FROM PRI-1 N4-R1

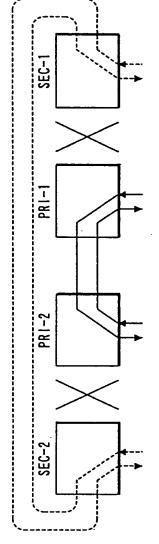


SEC-1

PR ! - 1

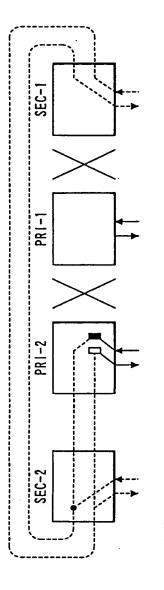
## FIG. 26(c)

FAILURE POSITION LOOKED FROM SEC-1 N1-R2 FAILURE POSITION LOOKED FROM PRI-1 N3-R4



### FIG. 27(a)

FAILURE POSITION LOOKED FROM SEC-1 N1-R3 FAILURE POSITION LOOKED FROM PRI-1 N2-R4



#### FIG. 27(b)

PR 1-1

PR1-2

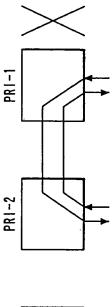
SEC-2

FAILURE POSITION LOOKED FROM SEC-1 N2-R3 FAILURE POSITION LOOKED FROM PRI-1 N2-R3



### FIG. 27(c)

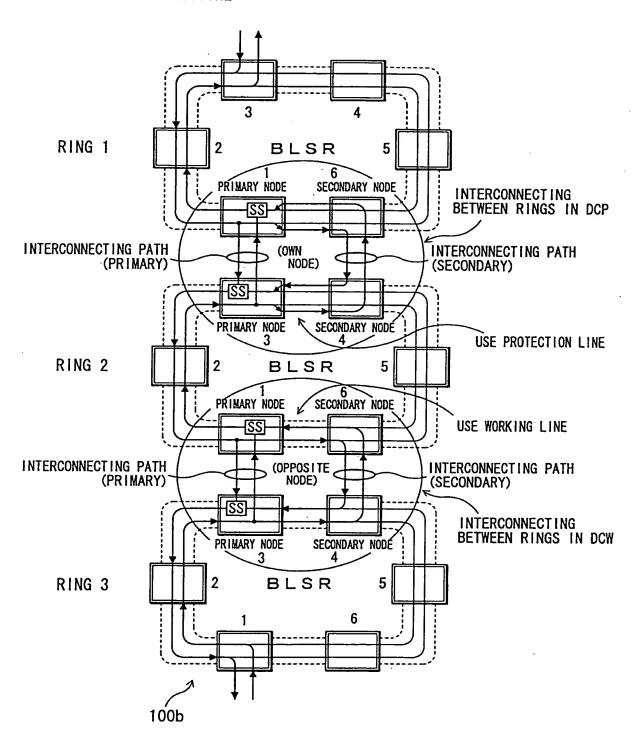
FAILURE POSITION LOOKED FROM SEC-1 N1-R4 FAILURE POSITION LOOKED FROM PRI-1 N1-R4



SEC-1

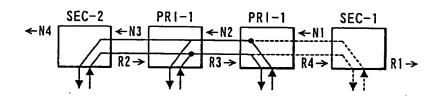
FIG. 28

#### DCP-DCW STRUCTURE



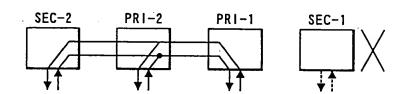
#### FIG. 29(a)

NORMAL OPERATION



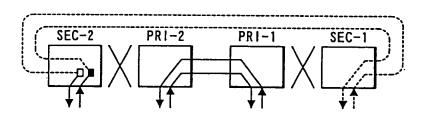
#### FIG. 29(b)

FAILURE POSITION LOOKED FROM SEC-1 N4-R1 FAILURE POSITION LOOKED FROM PRI-1 N4-R1



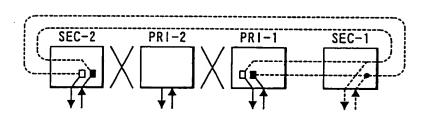
#### FIG. 29(c)

FAILURE POSITION LOOKED FROM SEC-1 N1-R2 FAILURE POSITION LOOKED FROM PRI-1 N3-R4



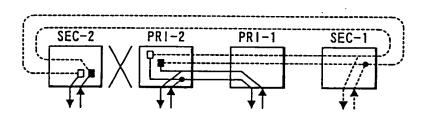
#### FIG. 29(d)

FAILURE POSITION LOOKED FROM SEC-1 N2-R2 FAILURE POSITION LOOKED FROM PRI-1 N2-R2



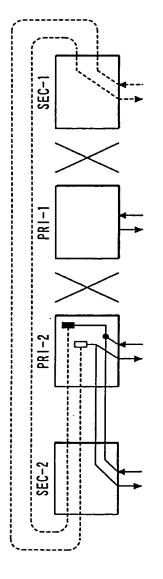
#### FIG. 29(e)

FAILURE POSITION LOOKED FROM SEC-1 N3-R2 FAILURE POSITION LOOKED FROM PRI-1 N3-R2



### F16. 30(a)

FAILURE POSITION LOOKED FROM SEC-1 N1-R3 FAILURE POSITION LOOKED FROM PRI-1 N2-R4



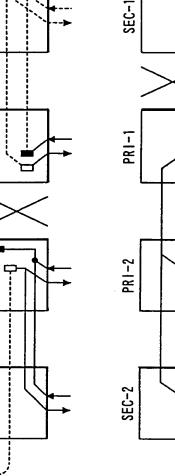
### FIG. 30(b)

SEC-1

PR 1-1

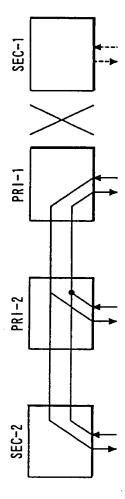
PR1-2

FAILURE POSITION LOOKED FROM SEC-1 N2-R3 FAILURE POSITION LOOKED FROM PRI-1 N2-R3



### FIG. 30(c)

FAILURE POSITION LOOKED FROM SEC-1 N1-R4 FAILURE POSITION LOOKED FROM PRI-1 N1-R4

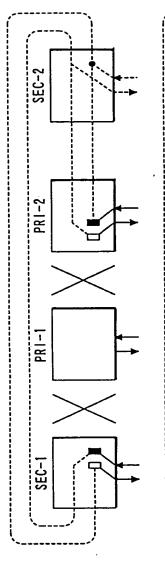


SEC-1 PRI-1 PRI-2 SEC-2 ←R1 FIG. 31(a) NORMAL OPERATION <-R4 ←R3 FIG. 31(b) FAILURE POSITION LOOKED FROM SEC-1 N1-R1 SEC-1 PR1-1 PRI-2 SEC-2 FAILURE POSITION LOOKED FROM PRI-1 N4-R4 FAILURE POSITION LOOKED SEC-1 PRI-1 PRI-2 SEC-2 FIG. 31(c) FROM SEC-1 N2-R1 FAILURE POSITION LOOKED FROM PRI-1 N2-R1 FAILURE POSITION LOOKED SEC-1 PRI-2 PRI-1 SEC-2 FIG. 31(d.) FROM SEC-1 N3-R1 FAILURE POSITION LOOKED FROM PRI-1 N3-R1 FAILURE POSITION LOOKED SEC-1 PRI-1 PRI-2 SEC-2 FROM SEC-1 N4-R1 FIG. 31(e) FAILURE POSITION LOOKED FROM PRI-1 N4-R1 FAILURE POSITION LOOKED SEC-1 PRI-1 PR1-2 SEC-2 FROM SEC-1 N1-R2 FIG. 31(f) FAILURE POSITION LOOKED FROM PRI-1 N3-R4 FAILURE POSITION LOOKED SEC-1 PR1-1 PRI-2 SEC-2 FROM SEC-1 N2-R2
FAILURE POSITION LOOKED FIG. 31(g) FROM PRI-1 N2-R2 FAILURE POSITION LOOKED SEC-1 PRI-1 PR1-2 SEC-2 FIG. 31(h) FROM SEC-1 N3-R2
FAILURE POSITION LOOKED

FROM PRI-1 N3-R2

### F16. 32(a)

FAILURE POSITION LOOKED FROM SEC-1 N1-R3 FAILURE POSITION LOOKED FROM PRI-1 N2-R4



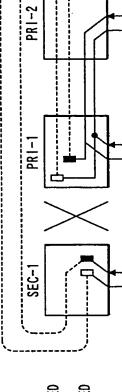
### FIG. 32(b)

PRI-2

PRI-1

SEC-1

FAILURE POSITION LOOKED FROM SEC-1 N2-R3 FAILURE POSITION LOOKED FROM PRI-1 N2-R3



SEC-2

### FIG. 32(c)

FAILURE POSITION LOOKED FROM SEC-1 N1-R4 FAILURE POSITION LOOKED FROM PRI-1 N1-R4

FIG. 33

#### DOUBLE-SIDED DCW STRUCTURE

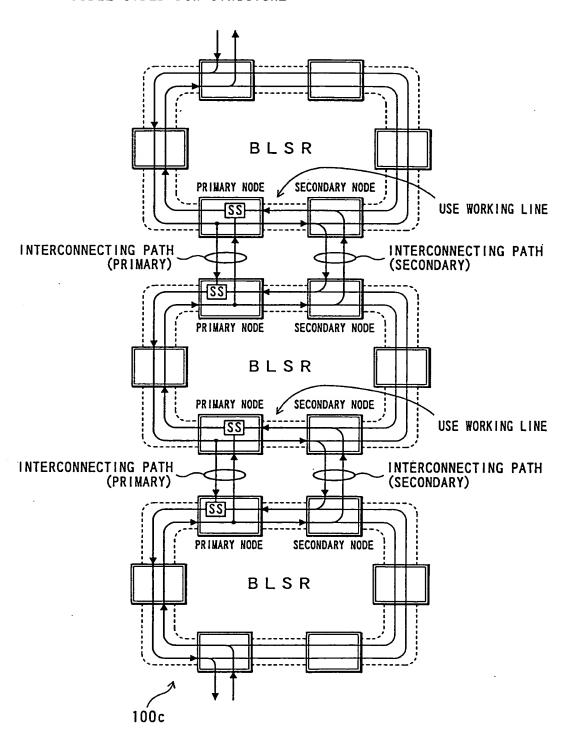


FIG. 34(a) NORMAL OPERATION

FIG. 34(b) FAILURE POSITION LOOKED FROM SEC-1 NI-R1 FAILURE POSITION LOOKED FROM PRI-1 N4-R4

FIG. 34(c) FAILURE POSITION LOOKED FROM SEC-1 N2-R1 FAILURE POSITION LOOKED FROM PRI-1 N2-R1

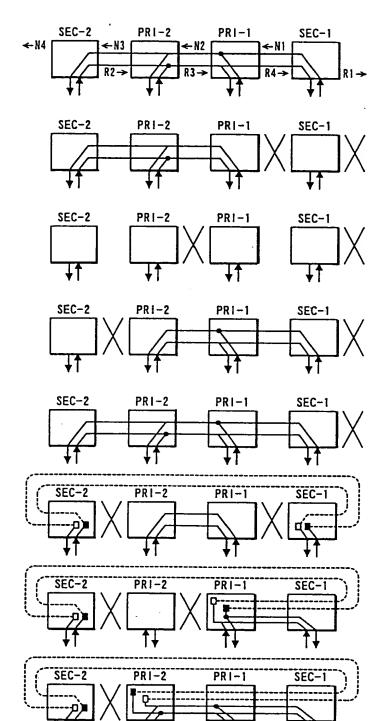
FIG. 34(d) FROM SEC-1 N4-R1 FAILURE POSITION LOOKED FROM PRI-1 N3-R1

FIG. 34(e) FAILURE POSITION LOOKED FROM SEC-1 N4-R1 FAILURE POSITION LOOKED FROM PRI-1 N4-R1

FIG. 34(f) FAILURE POSITION LOOKED FROM SEC-1 N1-R2 FAILURE POSITION LOOKED FROM PRI-1 N3-R4

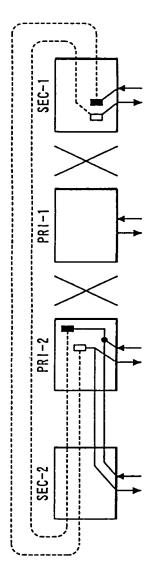
FIG. 34(g) FAILURE POSITION LOOKED FROM SEC-1 N2-R2 FAILURE POSITION LOOKED FROM PRI-1 N2-R2

FIG. 34(h) FAILURE POSITION LOOKED FROM SEC-1 N3-R2 FAILURE POSITION LOOKED FROM PRI-1 N3-R2



### F16. 35(a)

FAILURE POSITION LOOKED FROM SEC-1 N1-R3 FAILURE POSITION LOOKED FROM PRI-1 N2-R4



### FIG. 35(b)

FAILURE POSITION LOOKED FROM SEC-1 N2-R3 FAILURE POSITION LOOKED FROM PRI-1 N2-R3

SEC-1

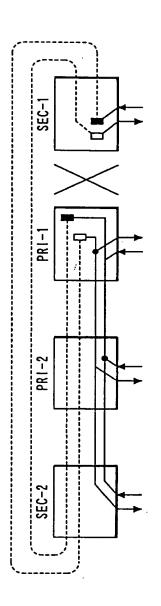
PRI-1

PR1-2

SEC-2

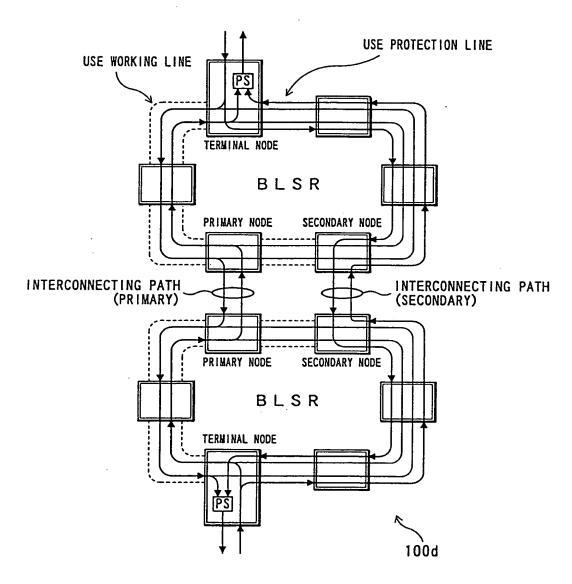
# F16. 35(c)

FAILURE POSITION LOOKED FROM SEC-1 N1-R4 FAILURE POSITION LOOKED FROM PRI-1 N1-R4



#### FIG. 36

#### DTP STRUCTURE



# FAILURE OPERATION PATTERNS IN DTP (NORMAL BLSR)

FIG. 37(a)

NORMAL OPERATION

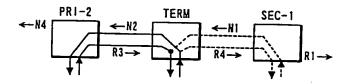


FIG. 37(b)

FAILURE POSITION LOOKED FROM SEC-1 N2-R1 FAILURE POSITION LOOKED FROM TERM N2-R1

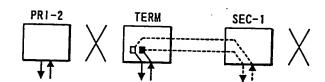


FIG. 37(c)

FAILURE POSITION LOOKED FROM SEC-1 N2-R3 FAILURE POSITION LOOKED FROM TERM N2-R3

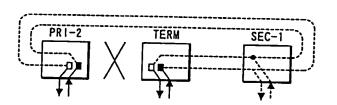


FIG. 37(d)

FAILURE POSITION LOOKED FROM SEC-1 N1-R4 FAILURE POSITION LOOKED FROM TERM N1-R4

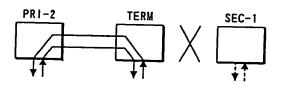
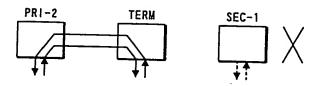
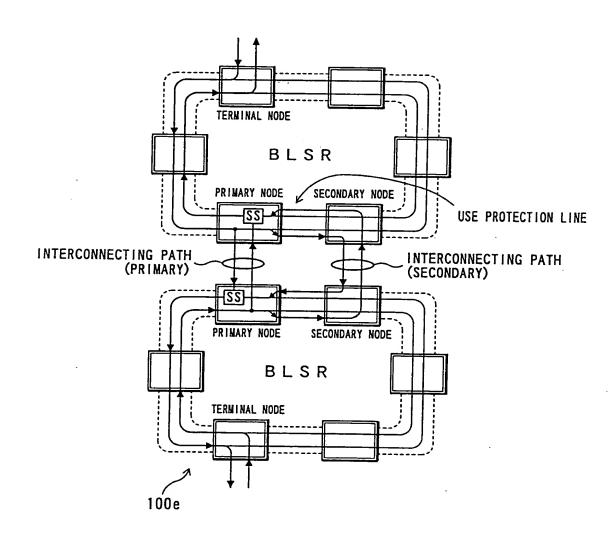


FIG. 37(e)

FAILURE POSITION LOOKED FROM SEC-1 N4-R1 FAILURE POSITION LOOKED FROM TERM N4-R1

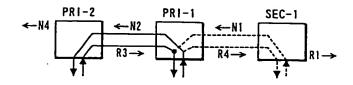


### SINGLE-SIDED DCP STRUCTURE



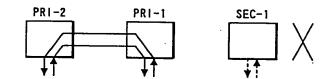
# FIG. 39(a)

NORMAL OPERATION



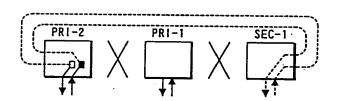
# FIG. 39(b)

FAILURE POSITION LOOKED FROM SEC-1 N4-R1 FAILURE POSITION LOOKED FROM PRI-1 N4-R1



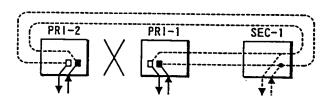
# FIG. 39(c)

FAILURE POSITION LOOKED FROM SEC-1 NI-R3 FAILURE POSITION LOOKED FROM PRI-1 N2-R4



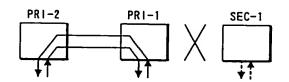
# FIG. 39(d)

FAILURE POSITION LOOKED FROM SEC-1 N2-R3 FAILURE POSITION LOOKED FROM PRI-1 N2-R3



# FIG. 39(e)

FAILURE POSITION LOOKED FROM SEC-1 NI-R4 FAILURE POSITION LOOKED FROM PRI-1 NI-R4



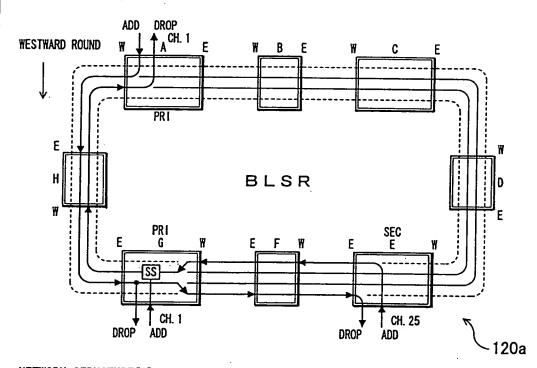
### SINGLE-SIDED DCP STRUCTURE

### NETWORK STRUCTURE[A] CH. 1

	EAST					WE			
L		END	W	END	Ε	END	W	END	
DROP					D	C-WK	D	-PT	ADD
ADD					D	C-WK	D	:-PT	DROP

### PATH CONNECTION TABLE[A] CH. 1

	EAST								
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	1
DROP					A	Α	G	E	ADD
ADD					. A	. A	G	Ε	DROP



### NETWORK STRUCTURE[G] CH. 1

1	_	ST	WE			
		W END	END	W	END	
		DC-PT				ADD
ADD	DC-WK	DC-PT				DROP

### PATH CONNECTION TABLE[G] CH. 1

		EA	ST						
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP	A	A	G	E					ADD
ADD	A	A	G	Ε					DROP

### NETWORK STRUCTURE[E] CH. 25

	EA		WE		
	E END	W END	E END	W END	1 1
DROP	DC-WK	DC-PT			ADD
ADD	DC-WK	DC-PT			DROP

		EA	ST						
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP	A	_ A	G	E					ADD
ADD	A	A	G	E					DROP

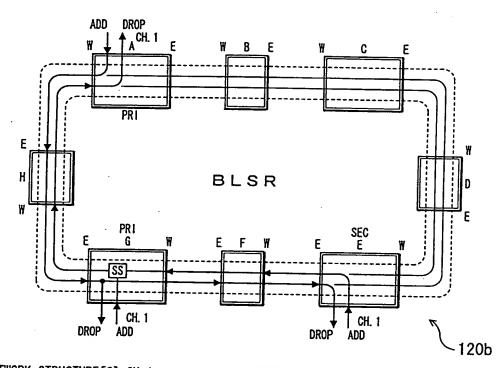
### SINGLE-SIDED DCW STRUCTURE

### NETWORK STRUCTURE[A] CH. 1

	EAST				WE		1			
		ND	W	END	Ε	END	W	END	1	I
DROP					DC	)-WK	DC	-WK	ADD	1
ADD		_			DC	)-WK	DC	:-WK	DROP	1

### PATH CONNECTION TABLE[A] CH. 1

		EA	ST						
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP					A	A	G	E	ADD
ADD					A	A	G	Ε	DROP



# NETWORK STRUCTURE[G] CH. 1

		ST	WE		
	E END	W END	E END	W END	١.
		DC-WK			ADD
ADD	DC-WK	DC-WK			DROP

# PATH CONNECTION TABLE[G] CH. 1

1		_EA	ST						
	S-E	P-E	P-₩	S-W	S-E	P-E	P-W	S-W	
DROP	Α	A	G	Ε					ADD
ADD	A	Α	G	Ε					DROP

### NETWORK STRUCTURE[E] CH. 1

	EA	Γ	WE				
L	E END	W END	Ε	END	W	END	1
DROP	DC-WK	DC-WK					ADD
ADD_	DC-WK	DC-WK					DROP

[		EA							
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	1
DROP	_ A	A	G	E			-		ADD
ADD	A	Ā	G	Ε					DROP

### DCP-DCP STRUCTURE

NETWORK STRUCTURE[A] CH. 1

	EAST					WE			
	EΕ	ND	W	END	Ε	END	W	END	l
DROP						-PT			
ADD					ŏ	:-PT	DC	:-PT	DROP

PATH CONNECTION TABLE[A] CH. 1

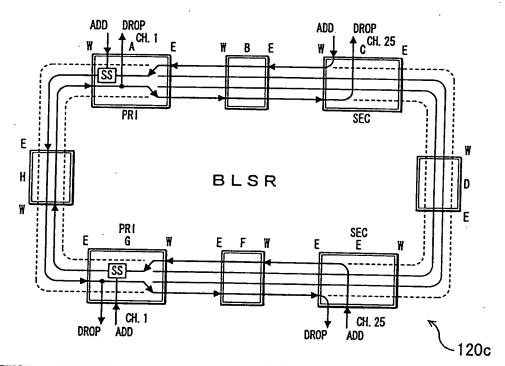
		EA	ST						
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP					C	A	G	Ε	ADD
ADD					С	A	G	Ε	DROP

NETWORK STRUCTURE[G] CH. 25

	EAST					WE			
	Ε	END	W	END	E	END	W	END	i .
DROP					DO	PT	DO	PT	ADD
ADD					ŏ	:-PT	DC	:-PT	DROP

### PATH CONNECTION TABLE[C] CH. 25

		EA							
Li	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP					C	A	G	Ε	ADD
ADD					С	Α	G	Ε	DROP



# NETWORK STRUCTURE[G] CH. 1

		ST		WEST					
	E END	# END	E EN	D W END	1 1				
	DC-PT				ADD				
ADD	DC-PT	DC-PT		-	DROP				

### PATH CONNECTION TABLE[G] CH. 1

		EA	ST						
L	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP	С	Α	G	Ε					ADD
ADD	C	A	G	Ε					DROP

NETWORK STRUCTURE[E] CH. 25

ļ	EA			WEST					
L	E END	W END	E EN	W END	i i				
DROP	DC-PT	DC-PT		!	ADD				
ADD	DC-PT	DC-PT		!	DROP				

		EA				WEST					
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W			
DROP	C	Α	G	E					ADD		
ADD	C	A	G	E					DROP		

### DCP-DCW STRUCTURE

NETWORK STRUCTURE[A] CH. 1

	EAST					WE			
		END	W	END	Ε	END	W END		
DROP					ď	C-WK	D	C-PT	ADD
ADD					DO	)-WK	DO	C-PT	DROP

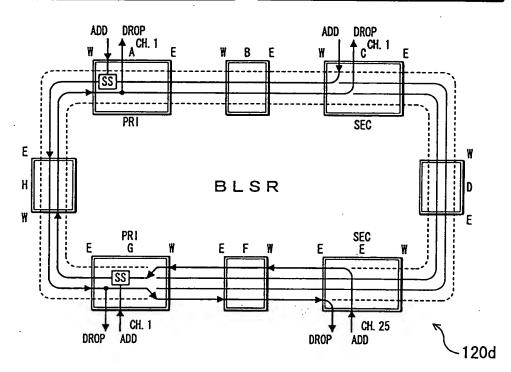
		EA				WEST					
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W			
DROP					C	A	G	Ε	ADD		
ADD					C	A	G	Ε	DROP		

### NETWORK STRUCTURE[C] CH. 1

$\bigcap$	EAST					WE			
	E END W END				Ε	END			
DROP					DO	C-WK	DC	-PT	ADD
ADD					DO	C-WK	D(	PT	DROP

# PATH CONNECTION TABLE[A] CH. 1 PATH CONNECTION TABLE[C] CH. 1

		EA	ST			WEST						
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W				
DROP					C	Α	G	Ε	ADD			
ADD					C	A	G	Ε	DROP			



### NETWORK STRUCTURE[G] CH. 1

	EAST					WE			
	E	END	W	END	Ε	END	W	END	
DROP									ADD
ADD	DO	C-WK	DC	2-PT					DROP

### PATH CONNECTION TABLE[G] CH. 1

		EA	ST						
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP	C	Α	G	Е					ADD
ADD	C	A	G	Ε					DROP

NETWORK STRUCTURE[E] CH. 25

	EA		WE		
				W END	
DROP	DC-WK	DC-PT		:	ADD
ADD	DC-WK	DC-PT			DROP

		EA							
	S-E	P-E	P-₩	S-W	S-E	P-E	P-W	S-W	
DROP	ပ	A	G	E					ADD
ADD	C	A	G	E					DROP

### DCW-DCW STRUCTURE

### NETWORK STRUCTURE[A] CH. 1

	EA				WE			
	END	₩	END	E	END	W	END	
DROP							C-WK	
ADD				D	)-WK	D	C-WK	DROP

### PATH CONNECTION TABLE[A] CH. 1

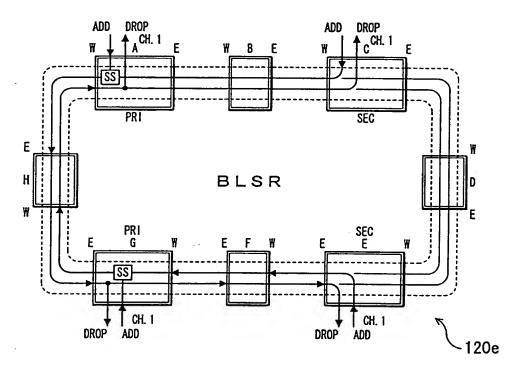
		EA	ST						
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP					C	A	G	Ε	ADD
ADD					ပ	A	G	Ε	DROP

### NETWORK STRUCTURE[C] CH. 1

	EA		WE				
	END	W				END	
DROP			DC	)—WK	DO	)-WK	ADD
ADD			D	)-WK	D(	:-WK	DROP

### PATH CONNECTION TABLE[C] CH. 1

			_								
	EA	ST			WEST						
S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	1			
				С	Α	G	Ε	ADD			
				C	Α	G	Ε	DROP			
	S-E	S-E P-E	EAST S-E P-E P-W	S-FIP-FIP-WIS-W	S-E P-E P-W S-W S-E	S-E P-E P-W S-W S-E P-E C A	EAST WEST  S-E P-E P-W S-W S-E P-E P-W  C A G	EAST WEST  S-E P-E P-W S-W S-E P-E P-W S-W  C A G E			



### NETWORK STRUCTURE[G] CH. 1

	EAST					WE			
						END	W	END	
DROP	DC	)—WK	DC	)-WK					ADD
ADD	Ď	)-WK	DC	-WK					DROP

### PATH CONNECTION TABLE[G] CH. 1

		ΕA	ST		Г				
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP	С	Α	G	E					ADD
ADD	C	Α	G	Ε					DROP

### NETWORK STRUCTURE[E] CH. 1

		ST		WE			
		W END		END	W	END	
DROP	DC-WK	DC-WK	Γ		Г		ADD
ADD	DC-WK	DC-WK					DROP

		EA	ST			WEST					
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W			
DROP	ပ	A	G	Ε					ADD		
ADD	C	A	G	Ε					DROP		

FIG. 45

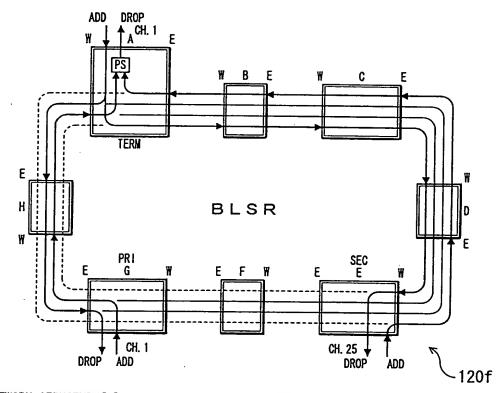
### DTP STRUCTURE

### NETWORK STRUCTURE[G] CH. 1

		EA			WE	ST			
	Ε	END	W	END	Ε	END	W	END	
DROP					D	I-PI	D	T-WK	ADD
ADD					D	T-PT	D	-WK	DROP

### PATH CONNECTION TABLE[A] CH. 1

	L	EAST S-E P-E P-W S-W				WEST						
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W				
DROP					Ε	Α	G	G	ADD			
ADD					Ε	A	G	G	DROP			



### NETWORK STRUCTURE[G] CH. 1

	EA		WE			
	E END		END	W	END	i .
DROP	DT-PT	DT-WK				ADD
ADD	DT-PT	DT-WK				DROP

### PATH CONNECTION TABLE[G] CH. 1

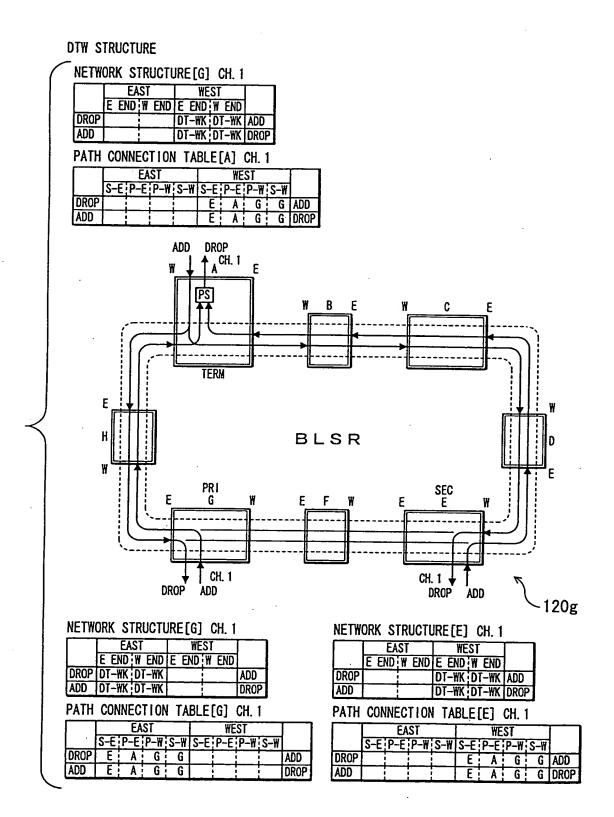
1		EA	ST						
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	1
DROP	Ε	Ā	G	G					ADD
ADD_	E	Α	G	G					DROP

### NETWORK STRUCTURE[E] CH. 25

		EA	ST			WE			
	Ε	END	W	END	Ε	END	DY		
DROP					D	PT	DT-1	ΥK	ADD
ADD					D	-PT	DT-	ΥK	DROP

		EA	<del>-</del>						
	S <del>-E</del>	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP					E	A	G	G	ADD
ADD					E	A	G	G	DROP

FIG. 46



### DCP-DCP STRUCTURE

### NETWORK STRUCTURE[A] CH. 1

	EA				WE			
	END	W	END	E	END	END		
DROP				Ы	)-PT	D	:-PT	ADD
ADD				DC	:-PT	DO	:-PT	DROP

### PATH CONNECTION TABLE[A] CH. 1

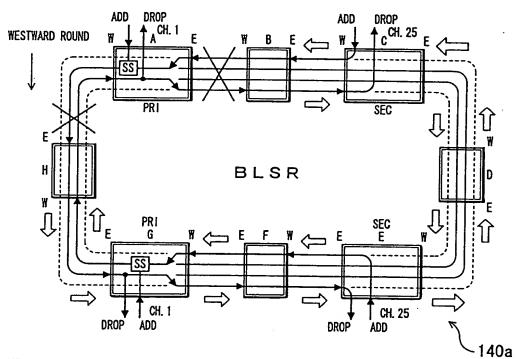
Г	Г	EA	ST		Г — — <sup>:</sup>	WE	ST		Г
	S-E	P-E		S-W	S-E		P-W	S-W	
DROP					C	A	G	E	ADD
ADD					C	A	G	E	DROP

### NETWORK STRUCTURE[C] CH. 25

		EAST					ST		
	Ш	END	W						
DROP	L					)-PT			
ADD					S	<u> </u>	DC	-PT	DROP

### PATH CONNECTION TABLE[C] CH. 25

		EA	ST						
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP					C	A	G	E	ADD
ADD					C	A	G	Ε	DROP



### NETWORK STRUCTURE[G] CH. 1

· -		ST	Г	WE			
		W END		END	W	END	
		DC-PT					ADD
ADD	DC-PT	DC-PT					DROP

### PATH CONNECTION TABLE[G] CH. 1

1		EA	ST_			WE	ST		
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP	C	_ A	G	Ε					ADD
ADD	C	A	G	Ε					DROP

### NETWORK STRUCTURE[E] CH. 25

	EA		WE		
L	E END	W END	E END	W END	
DROP	DC-PT	DC-PT			ADD
ADD	DC-PT	DC-PT			DROP

		EA	<b>-</b> ·						
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP	ပ	A	G	Ε					ADD
ADD	C	Α	G	Ε					DROP

### DCP-DCP STRUCTURE

NETWORK STRUCTURE[A] CH. 1

	EAST					WE			
	Ε	END	W	END	Ε	END	W	END	
DROP					D	:-PT	DO	PT	ADD
ADD					O	:-PT	DC	:-PT	OROP

PATH CONNECTION TABLE[A] CH. 1

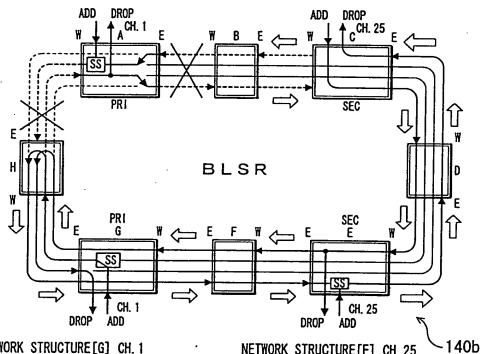
		EA	ST		ĺ				
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP					C	_ A	G	Ε	ADD
ADD					ပ	A	G	E	DROP

NETWORK STRUCTURE[C] CH. 25

		EA	ST		WE		
	Ε	END	W	END	E END	W END	
DROP					DC-PT	DC-PT	ADD
ADD					DC-PT	DC-PT	DROP

PATH CONNECTION TABLE[C] CH. 25

		EA							
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP					C	Α	G	Ε	ADD
ADD					C	A	G	E	DROP



### NETWORK STRUCTURE[G] CH. 1

ļ	EAST_					WE			
						END	W	END	
DROP	DC	:-PT	DC	:-PT	Г				ADD
ADD	DC	)-PT	DC	:-PT					DROP

PATH CONNECTION TABLE[G] CH. 1

		EA	ST						
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP	С	Α	G	Ε					ADD
ADD	ပ	Ä	G	Ε					DROP

NETWORK STRUCTURE[E] CH. 25

	EA	ST	WE		
	E END	W END	E END	W END	1
		DC-PT			ADD
ADD	DC-PT	DC-PT			DROP

### PATH CONNECTION TABLE[E] CH. 25

		EA							
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP	C	A	G	Ε					ADD
ADD	С	A	G	Ε					DROP

NORMAL LOOP-BACK: NORMAL-BLSR

FIG. 49(a)

NORMAL STATE

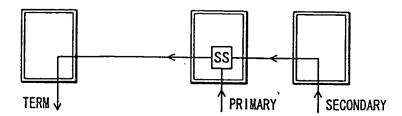


FIG. 49(b)

AT THE TIME OF FAILURE OCCURRENCE

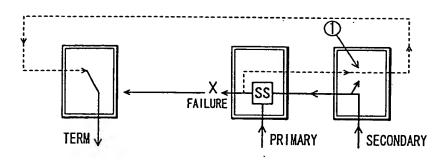


FIG. 49(c)

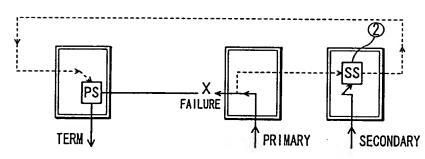


FIG. 49(d)

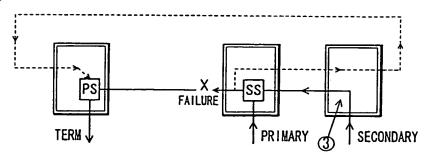


FIG. 50(a)

NORMAL STATE

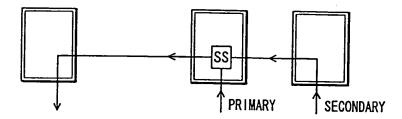


FIG. 50(b)

AT THE TIME OF FAILURE OCCURRENCE

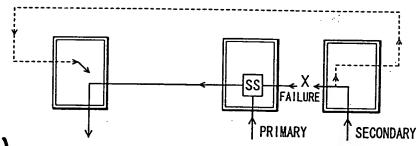
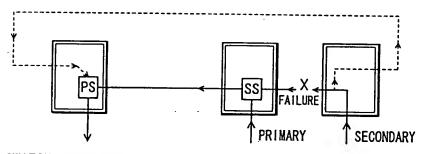


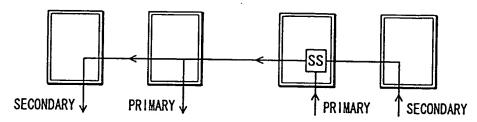
FIG. 50(c)

RESTORATION MEASURE



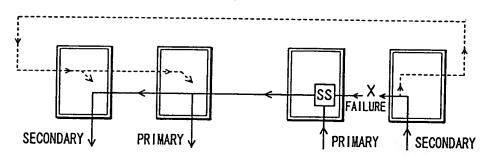
PATH SWITCH FUNCTION IS NECESSARY HERE (OPERATION AS A TERMINAL IN DTP)

# FIG. 51(a) NORMAL STATE



# FIG. 51(b)

AT THE TIME OF FAILURE OCCURRENCE



# FIG. 51(c)

RESTORATION MEASURE

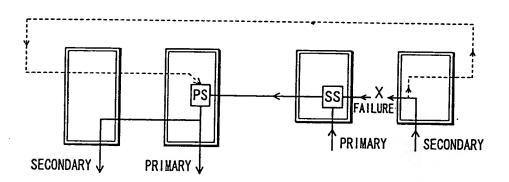
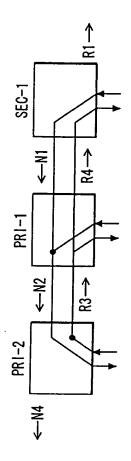


FIG. 52(a)

NORMAL OPERATION



# FIG. 52(b)

FAILURE POSITION LOOKED FROM SEC-1 N1-R4 FAILURE POSITION LOOKED FROM PRI-1 N1-R4

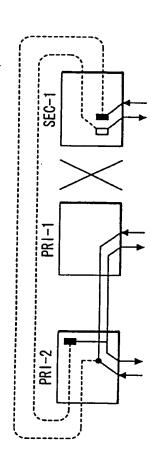


FIG. 53(a)

NORMAL OPERATION

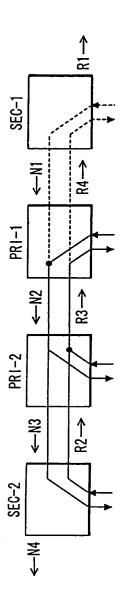


FIG. 53(b)

FAILURE POSITION LOOKED FROM SEC-1 N3-R2 FAILURE POSITION LOOKED FROM PRI-1 N3-R2

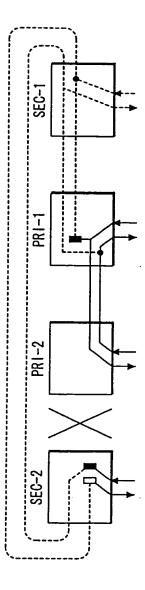
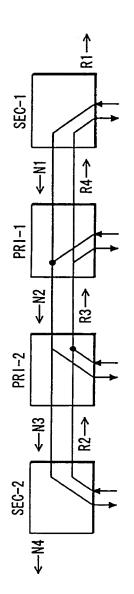


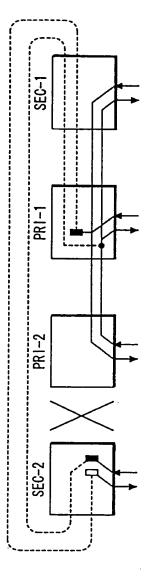
FIG. 54(a)

NORMAL OPERATION



# FIG. 54(b)

FAILURE POSITION LOOKED FROM SEC-1 N3-R2 FAILURE POSITION LOOKED FROM PRI-1 N3-R2



### DCP-DCP STRUCTURE

NETWORK STRUCTURE[A] CH. 1

	EAST					WE			
		END	W	END	E	END	W	END	
DROP					DC	PT	DO	-PT	ADD
ADD					ď	)-PT	DO	-PT	DROP

PATH CONNECTION TABLE[A] CH. 1

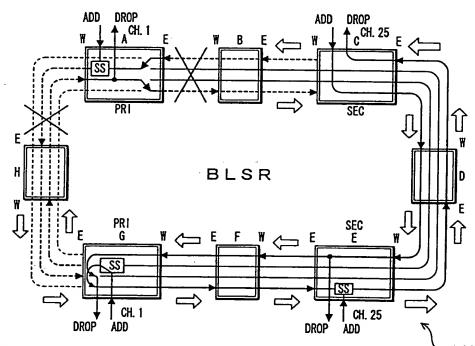
		EA	ST						
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP					С	A	G	E	ADD
ADD					С	A	G	Ε	DROP

NETWORK STRUCTURE[C] CH. 25

	EAST				WE		
		END	W	END	E END	W END	
DROP					DC-PT	DC-PT	ADD
ADD					DC-PT	DC-PT	DROP

PATH CONNECTION TABLE[C] CH. 25

	EAST			WEST					
L	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP					C	A	G	E	ADD
ADD					C	A	G	Ε	DROP



### NETWORK STRUCTURE[G] CH. 1

ł	i	EAST		WEST		
I			₩ END	ND W	END	
			DC-PT			ADD
	ADD	DC-PT	DC-PT			DROP

### PATH CONNECTION TABLE[G] CH. 1

		EAST			WEST				
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP	C	A	G	ш					ADD
ADD	C	A	G	Ε					DROP

NETWORK STRUCTURE[E] CH. 25

	EA	ST	WE		
	E END	W END	E END	W END	1 :
DROP	DC-PT	DC-PT			ADD
ADD	DC-PT	DC-PT			DROP

	EAST			WEST					
	S-E	P-E	P-W	S-W	S-E	P-E	P-W	S-W	
DROP	С	A	G	Ε					ADD
ADD	ပ	A	G	Ε					DROP

F16. 56

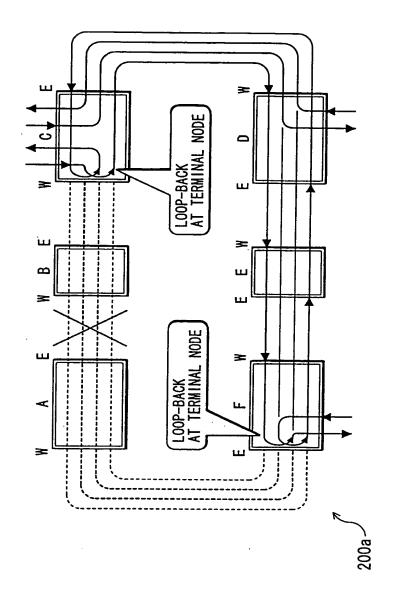


FIG. 57

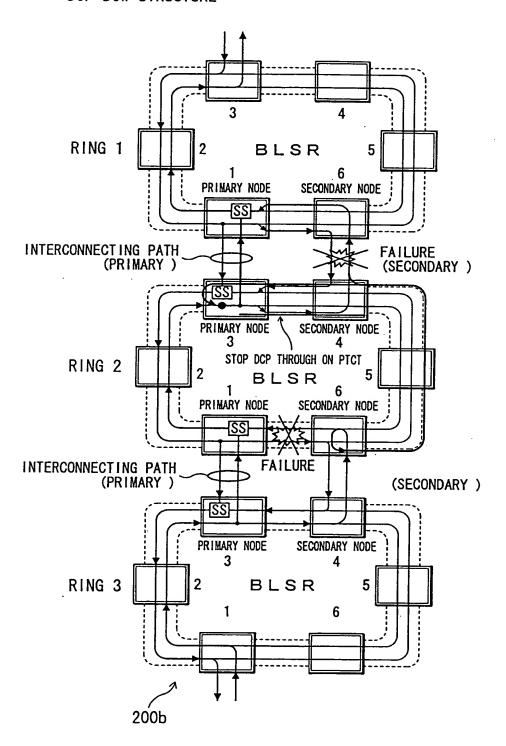
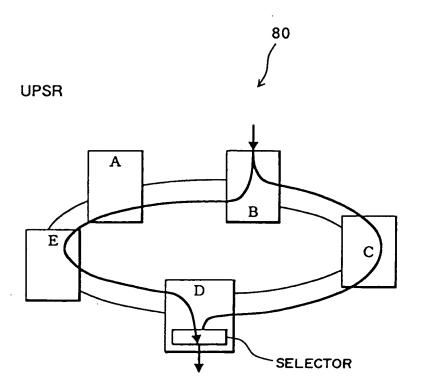
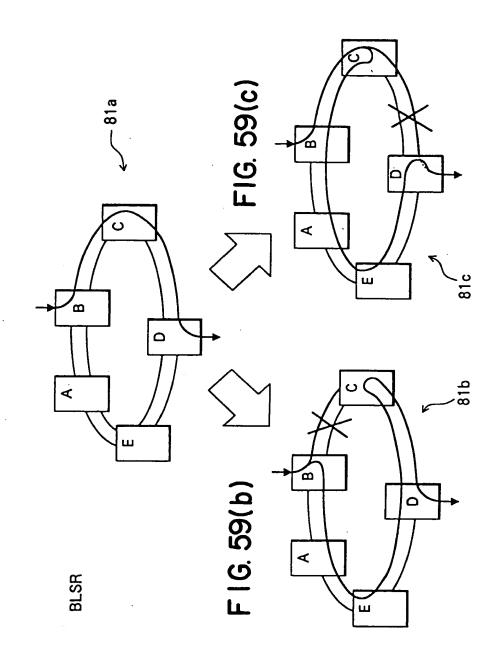


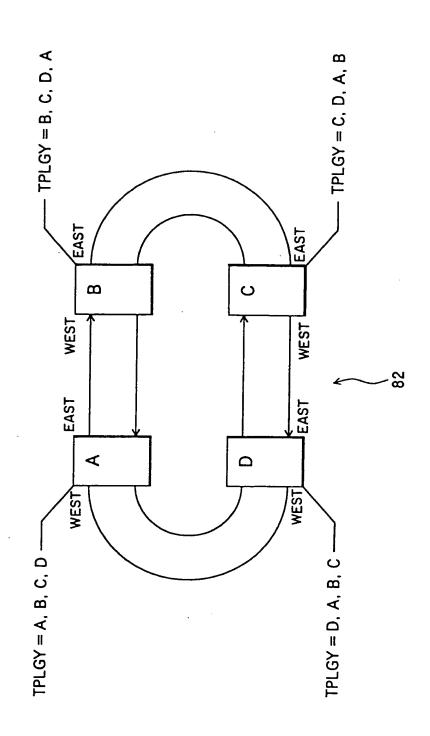
FIG. 58



F16. 59(a)



F1G. 60



# F16.61

	TRASMIT		
SIDE	DESTINATION	SOURCE	SIDE
WEST SIDE	SOURCE DESTINATION SOURCE DESTINATION TRASMIT	DESTINATION SOURCE DESTINATION SOURCE	WEST SIDE
IDE	DESTINATION	SOURCE	SIDE
EAST SIDE	SOURCE	DESTINATION	EAST SIDE
	EW DIRECTION	W-FE DIRECTION	
	E►	× ₩	

SOURCE DESTINATION SOURCE DESTINATION RECEIVE

DESTINATION SOURCE

SOURCE

W-FE DIRECTION DESTINATION

E -- W DIRECTION

SOURCE : 4 bits DESTINATION : 4 bits

FIG. 62(a)

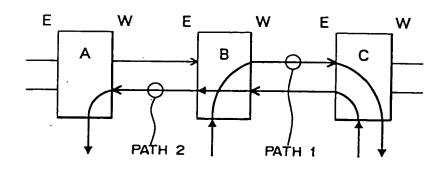


FIG. 62(b)

PATH	SOURCE NODE ID	DESTINATION NODE ID
1	В	С
2	С	А

FIG. 62(c)

	NODE A			
	EA	ST	WE	ST
E-W				
E-W			A	С
		E-W	EAST	EAST WE

NODE B						
E/	ST	WEST				
		В	С			
Α	С	Α	С			
SOURCE	DEST.	SOURCE	DEST.			
DEST.	SOURCE	DEST.	SOURCE			

NODE C					
EAS	ST.	WE	ST		
В	С				
Α	С				

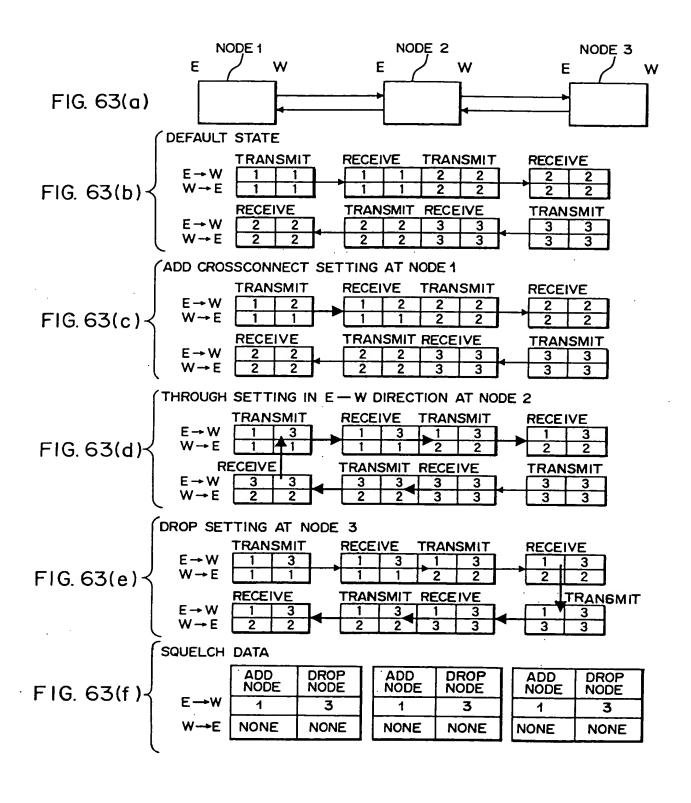
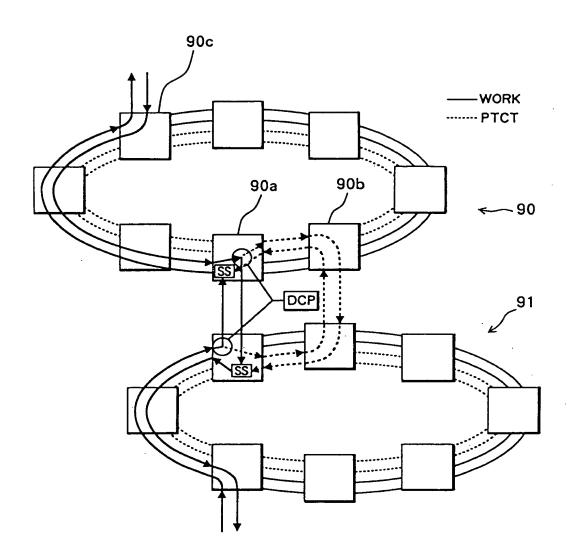
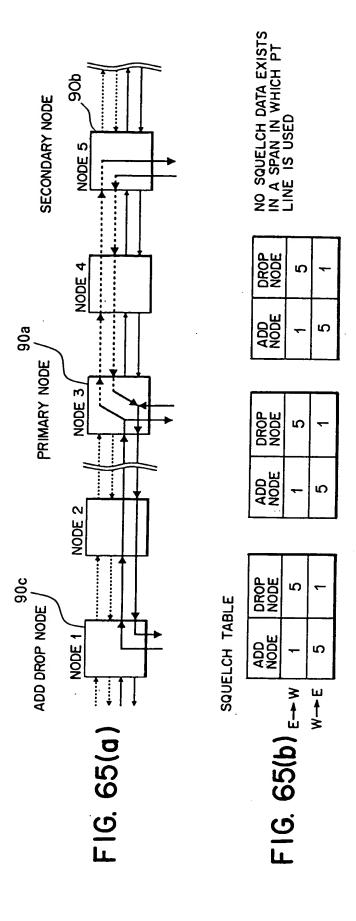


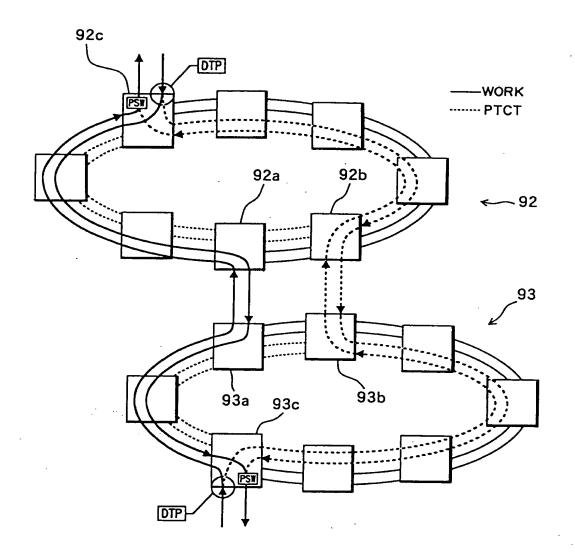
FIG. 64

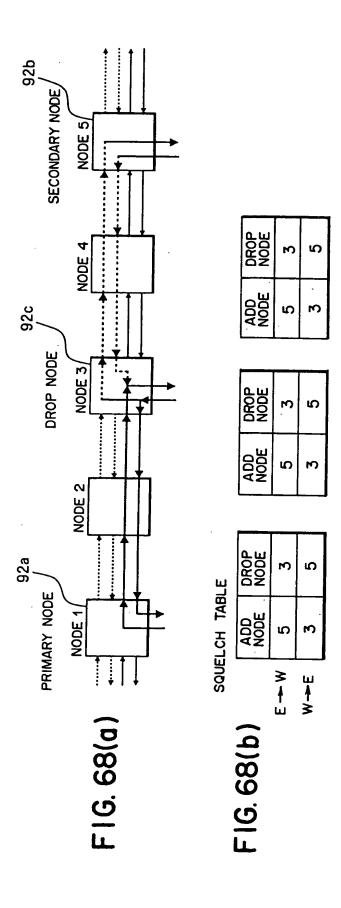




	r	<del></del>
İ	Operation of	Operation of
	primary node	secondary node
Failure in working		Execute ADD/DROP
line involving		control on PT line
primary node		in a direction
		opposite to
		primary node,
		insert AIS in PT
		line toward
		primary node
		•
Failure in working	Inhibit "Continue	Execute *Drop and
line not involving	on PT', fix	
primary node	switching of SS to	line toward
	ADD's side	primary node (PT
		line from terminal
		node) to transmit
1		signals to primary
·		node, inhibit
		setting of SS on PT
		line toward
		terminal node
Failure in	Inhibit "Continue	
protection line,	-	"ADD/DROP" to PT
failure in a span	<u> </u>	line
through which no	ADD's side	
signal passes	·	
·		
,		
		·

FIG. 67

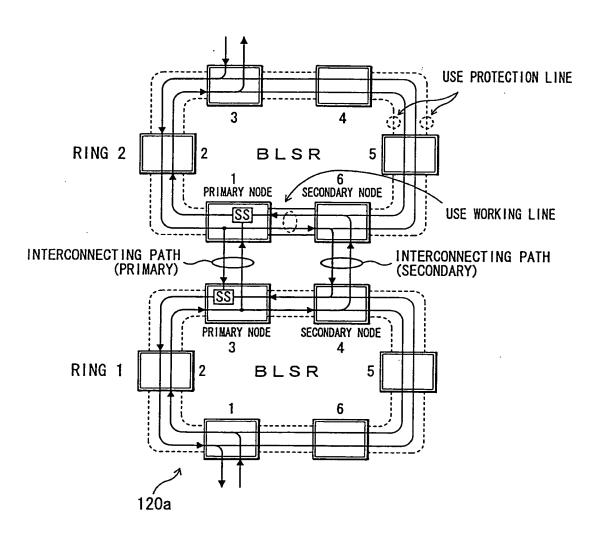




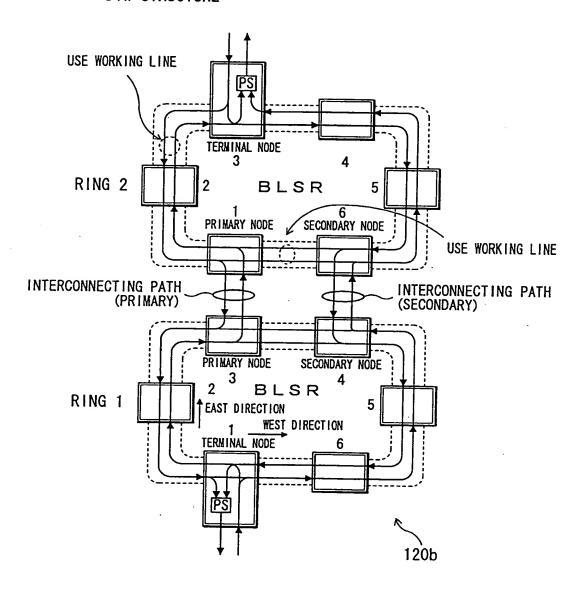
	Operation of	Operation of
	primary node	secondary node
	primary node	secondary node
Failure in working		Keep executing
line involving		"ADD/DROP" on PT
primary node		line
	·	
Failure in working	Perform normal	Execute "Drop and
line not involving	switching	Continue on PT
primary node	operation, operate	line toward
	as a through	primary node (PT
	station when being	line from terminal
	a through station	node) to transmit
		signals to primary
		node, inhibit
		setting of SS on PT
		line toward
		terminal node
Failure in	Same the above	Inhibit
protection line,		"ADD/DROP" to PT
failure in a span		line
through which no		
signal passes		
		·
Failure in working	Same the above	Same the above
line or PT line		
involving terminal		
node		
		-

# F IG. 70

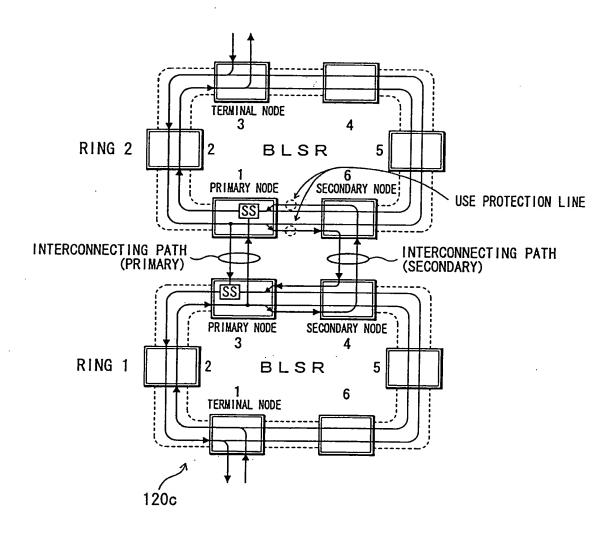
### SINGLE-SIDED DCW STRUCTURE



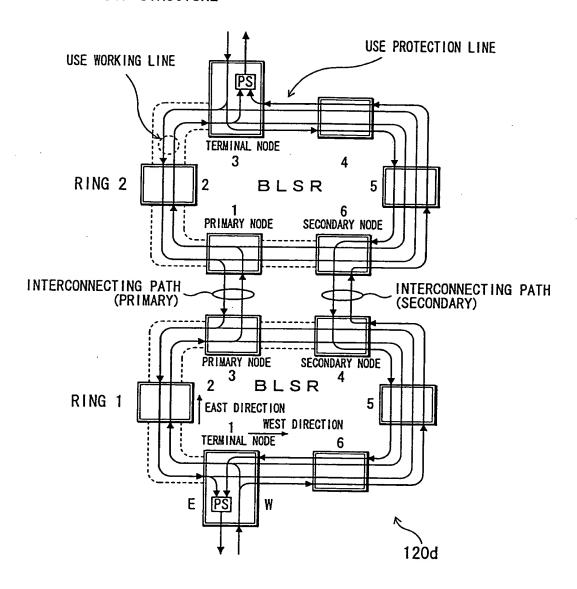
### DTW STRUCTURE



### SINGLE-SIDED DCP STRUCTURE

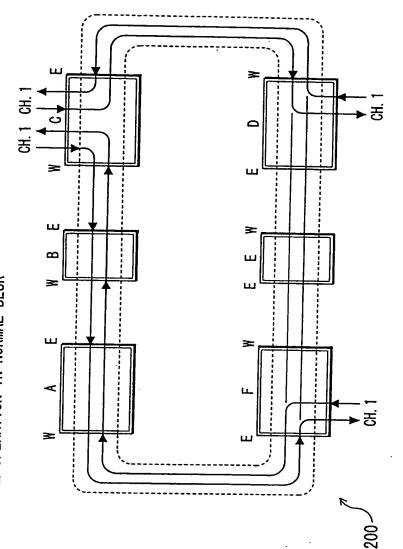


### DTP STRUCTURE



F1G. 74

NORMAL OPERATION IN NORMAL-BLSR



F1G. 75

